

Claims:

Having thus described our invention, what we claim as new, and desire to secure by letters Patent is:

1. ~~is~~ A data charging system comprising:
- a content generator for generating contents containing object data,
 - a recording medium for recording the charging data used for charging for said object data and the recognition data used for recognition of the object data, and
 - a data charging apparatus for charging for the use of said object data by using said charging data and said recognition data recorded;
- wherein said data charging apparatus comprises:
- data reading logic for reading said recognition data and said charging data from said recording medium,
 - a separator for separating said object data from said contents,
 - an recognition logic for recognizing said separated object data by using said recognition data read out,
 - an accounting logic for charging for the use of said recognized object data by using said charging data read out, and

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a writing logic for writing, as said charging data, the results of charging for the use of said recognized object data into said recording medium.

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2. A content generator for embedding digital watermarks in object data and generating contents in a data charging system which records, on a recording medium, the charging data used for charging for object data contained in said contents and the recognition data used for recognizing the object data and charges only for the use of the object data embedded with said digital watermarks by using said charging data and said recognition data recorded.

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3. In a data charging system which records, on a recording medium, the charging data used for charging for object data contained in said contents and the recognition data used for recognizing the object data and charges for the use of said object data by using said charging data and said recognition data recorded,

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a data charging apparatus comprising:

a data reading logic for reading said recognition data and said charging data from said recording medium,

a separator for separating said object data from said contents,

16 an recognition logic for recognizing said separated
 17 object data by using said recognition data read out,
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 19 an accounting logic for charging for the use of said
 20 recognized object data by using said charging data
 21 read out, and
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 23 a writing logic for writing, as said charging data,
 24 the results of charging for the use of said recognized
 25 object data into said recording medium.

1 4. The data charging apparatus according to Claim 3,
 2 wherein said contents comprise said object data and
 3 said recognition data for recognizing this object
 4 data,
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 6 said separator separates said object data and said
 7 recognition data from said contents,
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 9 said recognition logic recognizes said object data,
 10 based on said recognition data separated from said
 11 contents and on said recognition data read out from
 12 said recording medium, and
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 14 said accounting logic charges for said object data by
 15 using said charging data read out.

1 5. The data charging apparatus according to Claim 3,
 2 further comprising a watermarking logic for embedding
 3 digital watermarks in said object data separated from
 4 said contents, wherein said separator separates said

object data and said recognition data from said contents,

said recognition logic recognizes said object data, based on said recognition data separated from said contents and on said recognition data read out from said recording medium, and

said accounting logic charges for said object data embedded with said digital watermarks.

6. The data charging apparatus according to Claim 3, wherein a digital watermark is embedded in said object data in said contents,

said data charging apparatus further comprising a means for detecting if said object data is embedded with said digital watermark,

said separator separating said object data and said recognition data from said contents,

said recognition logic recognizing said object data, based on said recognition data separated from said contents and on said recognition data read out from said recording medium, and

said accounting logic charging for said object data only if said object data is found to be embedded with said digital watermark.

7. The data charging apparatus according to Claim 3, wherein said charging data recorded on said recording medium contains at least payment data which indicates the payment made in advance for the use of said object data, and

~~said accounting logic charges for the use of said
object data within the limits of the amount indicated
by said payment data contained in said charging data.~~

8. The data charging apparatus according to Claim 7, wherein said charging data recorded on said recording medium further contains unit price data representing the accounting unit for the use of said object data and the price corresponding to the accounting unit,

~~said data charging apparatus comprising an accounting unit detection logic for detecting unit accounting amount data which represents the amount of said accounting unit for the object data separated from said contents.~~

said accounting logic charging within the limits of the amount indicated by said payment data, based on said unit price data contained in said charging data read out and on the unit accounting amount data detected.

9. The data charging apparatus according to Claim 7, wherein said charging data recorded on said recording medium further contains unit price data representing

15 recognizing said separated object data by using said
 16 recognition data read out,
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 18 charging for the use of said recognized object data
 19 by using said charging data read out; and
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 21 writing, as said charging data, the results of
 22 charging for the use of said recognized object data
 23 into said recording medium.

1 11. A data charging method according to Claim 10, wherein
 2 said object data in said contents are embedded with
 3 digital watermarks, comprising the steps of:
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 5 separating said object data and said recognition data
 6 from said contents;
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 8 recognizing said object data, based on said
 9 recognition data separated from said contents and on
 10 said recognition data read out from said recording
 11 medium;
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 13 detecting said digital watermark embedded in said
 14 object data; and
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 16 charging for said recognized object data only by
 17 using said charging data read out if said object data
 18 is found to be embedded with said digital watermark.

1 12. A data charging method according to Claim 10,
 2 comprising the steps of:

separating said object data and said recognition data from said contents;

recognizing said object data, based on said recognition data separated from said contents and on said recognition data read out from said recording medium;

embedding digital watermarks in said separated object data; and

charging for the use of the object data embedded with said digital watermarks by using said charging data read out.

13. In a data charging apparatus of a data charging system which records, on a recording medium, the charging data used for charging for the object data contained in contents and the recognition data used for recognition of the object data, and charges for the use of said object data by using said charging data and said recognition data recorded;

a computer program product enabling a computer to execute the steps of:

reading said recognition data and said charging data from the recording medium,

embedding digital watermarks in said object data separated from said contents,

said object data and said recognition data are separated from said contents in said separation step,

said object data is recognized in said recognition step, based on said recognition data separated from said contents and on said recognition data read out from the recording medium, and

a charge is made for said object data embedded with said digital watermarks in said charging step.

16. The computer program product according to Claim 13, wherein said object data in said contents are embedded with digital watermarks,

the computer is further made to execute the step of detecting that said object data is embedded with said digital watermarks,

said object data and said recognition data are separated from said contents in said separation step,

said object data is recognized in said recognition step, based on said recognition data separated from said contents and on said recognition data read out from the recording medium, and

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17 a charge is made for said object data in said
18 charging step only if said object data is found to be
19 embedded with said digital watermark.

1 17. The computer program product according to Claim 13,
2 wherein said charging data recorded on said recording
3 medium contains at least payment data which indicates
4 the payment made in advance for the use of said
5 object data, and

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7 prices are charged in said charging step for the use
8 of said object data within the limits of the amount
9 indicated by said payment data contained in said
10 charging data.

1 18. The computer program product according to Claim 17,
2 wherein said charging data recorded on said recording
3 medium further contains unit price data representing
4 the accounting unit for the use of said object data
5 and the price corresponding to the accounting unit,
6 and

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8 a computer is made to execute the step of detecting
9 unit accounting amount data which represents the
10 amount of said accounting unit for the object data
11 separated from said contents, and

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13 prices are charged for the use of said object data
14 within the limits of the amount indicated by said
15 payment data, based on said unit price data contained
16 in said charging data read out and on the unit

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1 accounting amount data detected in said charging
2 step.

1 19. The computer program product according to Claim 17,
2 wherein said charging data recorded on said recording
3 medium further contains unit price data representing
4 the accounting unit for the use of said object data
5 and the price corresponding to the accounting unit as
6 well as accounting range data which represents the
7 range of one billing, and

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9 a computer is made to execute the step of detecting
10 unit accounting amount data which represents the
11 amount of said accounting unit for the object data
12 separated from said contents, and

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14 a price is charged each time for the use of said
15 object data within the limits of the amount indicated
16 by said payment data, based on said unit price data
17 contained in said charging data read out and on the
18 unit accounting amount data detected.

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